

## **APPENDIX 'A' - GEOTECHNICAL REPORT**

The geotechnical report is provided to aid in the Contractor's evaluation of the existing pavement structure and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in pavement structure and/or soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.



Stantec Consulting Ltd.  
199 Henlow Bay  
Winnipeg MB R3Y 1G4

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January 27, 2026

Project/File: 123317987

Erik Hansen  
City of Winnipeg  
1155 Pacific Avenue  
Winnipeg, MB R3E 3P1

Good day Erik,

**Reference: 2026 Local Street Renewal Program (Contract 4) - Geotechnical Investigation**

Stantec Consulting Ltd. (Stantec) was retained to undertake a factual geotechnical investigation for the 2026 Local Street Renewal Program (Contract 4) in Winnipeg, Manitoba. Use of this report is subject to the Statement of General Conditions provided in **Appendix A**.

A coring and drilling program was conducted from November 24 to December 4, 2025. A total of 19 locations were investigated with pavement coring and/or subsurface geotechnical drilling. Pavement coring was performed by Stantec's geotechnical field technologist, and drilling services were provided by Paddock Drilling Ltd. under the supervision of Stantec's technologist. A Borehole Location Plan is provided in **Appendix B**.

## **1. Pavement Coring**

A total of 12 pavement core samples were recovered to determine the in-place pavement thickness. In addition, 6 concrete core samples were tested to assess the in-place compressive strength of the concrete. The existing pavement thicknesses are summarized in **Table 1** below, and core photographs are provided in **Appendix C**.

## **2. Geotechnical Drilling**

A total of 13 boreholes were investigated by geotechnical drilling. The boreholes were terminated at a depth of 1.0 or 2.0 m below the pavement, which resulted in borehole depths ranging from 1.0 m to 2.2 m. Soil samples were obtained directly from the auger flights at depths of 0.6 m, 0.9 m, 1.2 m, 1.6 m, and 2.0 m from the bottom of the existing pavement. The testholes were examined for evidence of sloughing and groundwater seepage upon completion of drilling.

Reference: 2026 Local Street Renewal Program (Contract 4) - Geotechnical Investigation

The borehole records are provided in **Appendix D**. The soil classification used in the borehole records is as per ASTM D2487 – *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)*.

### 3. Pavement Thicknesses

The existing pavement thicknesses are provided in the following table:

**Table 1 – Pavement Thicknesses**

Borehole No.	Street	Asphalt (mm)	Concrete (mm)	Total (mm)
116	Arlington St	55	175	230
117		0	170	170
118		0	140	140
119		0	150	150
120		0	140	140
121		0	140	140
122		McPhillips St (Southbound)	80	190
123	90		180	270
124	75		195	270
125	80		195	275
126	80		185	265
127	95		205	300
128	McPhillips St Shoulder (Gravel Surface)	0	0	0
129		0	0	0
130		0	0	0
131		0	0	0
132		0	0	0
133		0	0	0
134		0	0	0

Reference: 2026 Local Street Renewal Program (Contract 4) - Geotechnical Investigation

## 4. Laboratory Testing

Laboratory determination of moisture content (ASTM D2216) was conducted on all soil samples. The results are provided on the attached borehole records.

In addition, the following laboratory tests were conducted on select samples:

- ASTM D4318 - *Liquid Limit, Plastic Limit, and Plasticity Index of Soils*
- ASTM D7928 - *Particle-Size Distribution of Fine-Grained Soils Using The Sedimentation Analysis*
- ASTM D698 - *Laboratory Compaction Characteristics of Soil Using Standard Effort*
- ASTM D1883 - *California Bearing Ratio (CBR) of Laboratory-Compacted Soils*
- CSA A23.2-14C – *Obtaining and testing drilled cores for compressive strength testing*

The CBR tests were performed on test specimens compacted to 95% of the maximum dry density under soaked conditions.

Prior to compressive strength testing, the concrete core samples were conditioned in water at room temperature for 48 hours.

The laboratory test reports are provided in **Appendix E**.

## 5. Closure

Please contact the undersigned if you have any questions regarding this report.

Regards,

**Stantec Consulting Ltd.**



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Attachment: Appendix A – Statement of General Conditions  
Appendix B – Borehole Location Plan  
Appendix C – Core Photographs  
Appendix D – Borehole Records  
Appendix E – Laboratory Test Reports

## **Appendix A**

### Statement of General Conditions

## STATEMENT OF GENERAL CONDITIONS

**USE OF THIS REPORT:** This report has been prepared for the sole benefit of the Client or its agent and may not be used by any third party without the express written consent of Stantec and the Client. Any use which a third party makes of this report is the responsibility of such third party.

**BASIS OF THE REPORT:** The information, opinions, and/or recommendations made in this report are in accordance with Stantec's present understanding of the site-specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site-specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Stantec is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

**STANDARD OF CARE:** Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state or province of execution for the specific professional service provided to the Client. No other warranty is made.

**INTERPRETATION OF SITE CONDITIONS:** Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Stantec at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock, and groundwater conditions as influenced by geological processes, construction activity, and site use.

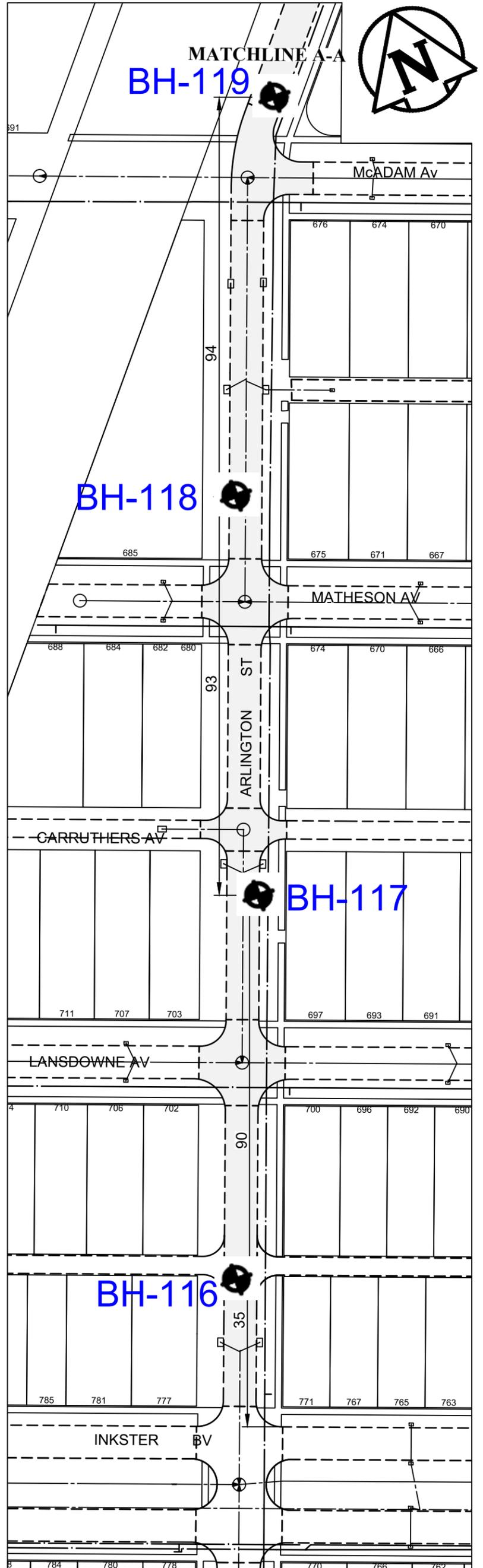
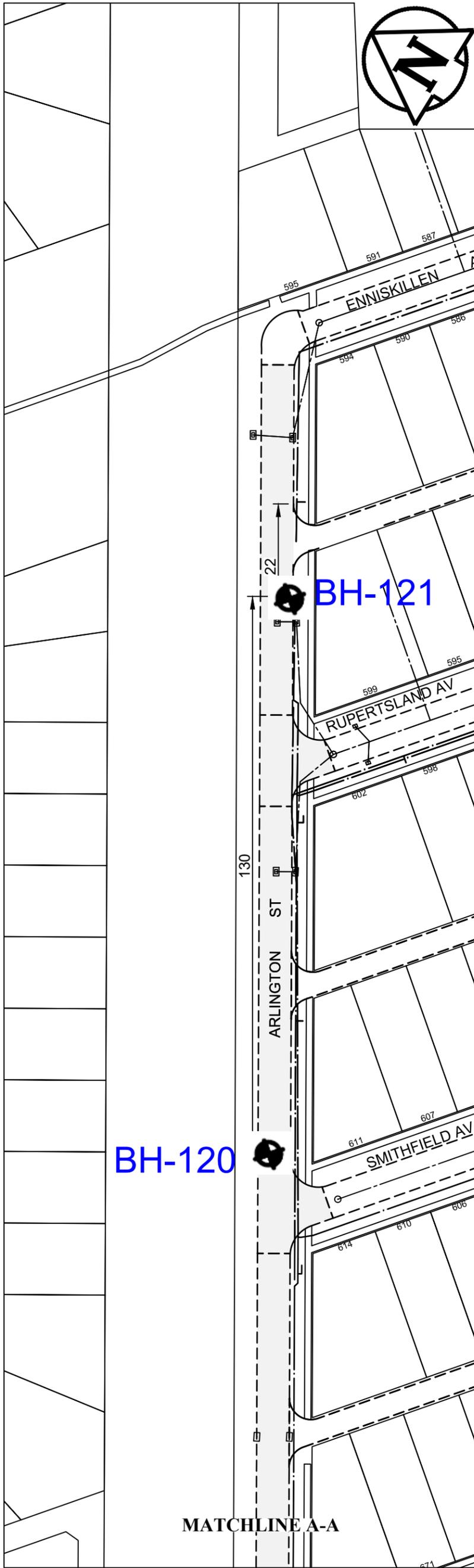
**VARYING OR UNEXPECTED CONDITIONS:** Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Stantec must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Stantec will not be responsible to any party for damages incurred as a result of failing to notify Stantec that differing site or sub-surface conditions are present upon becoming aware of such conditions.

**PLANNING, DESIGN, OR CONSTRUCTION:** Development or design plans and specifications should be reviewed by Stantec, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc.), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Stantec cannot be responsible for site work carried out without being present.



## **Appendix B**

### Borehole Location Plan



	LDS/WWS
	WATERMAIN
	TESTHOLE

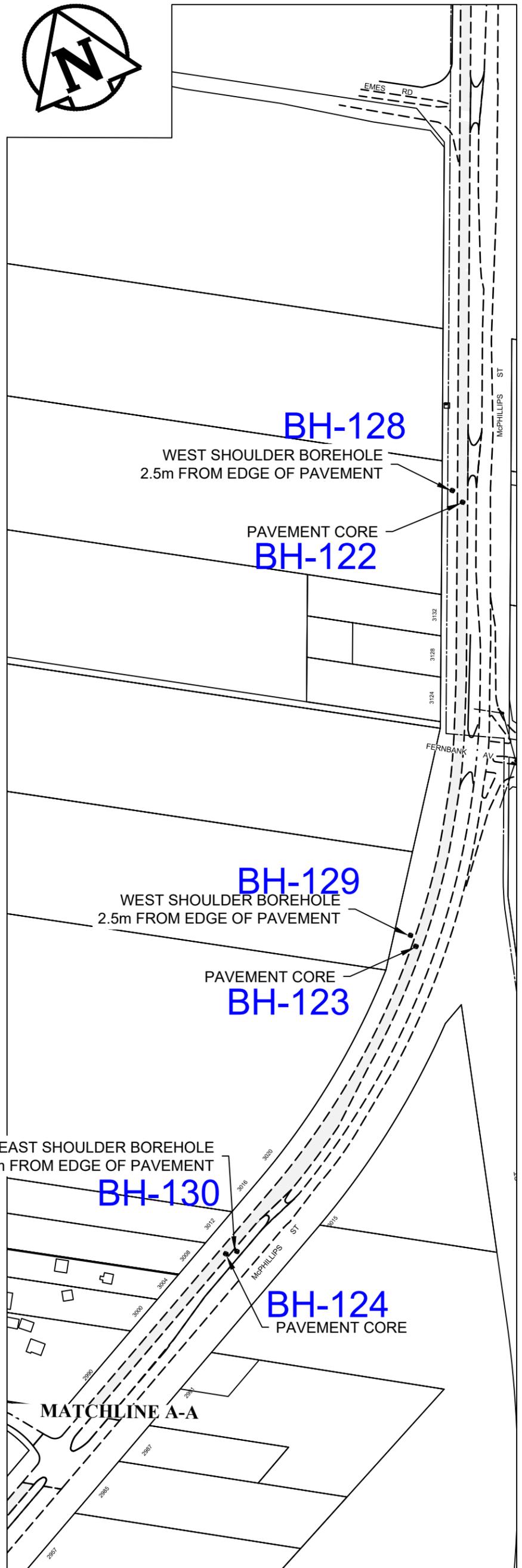
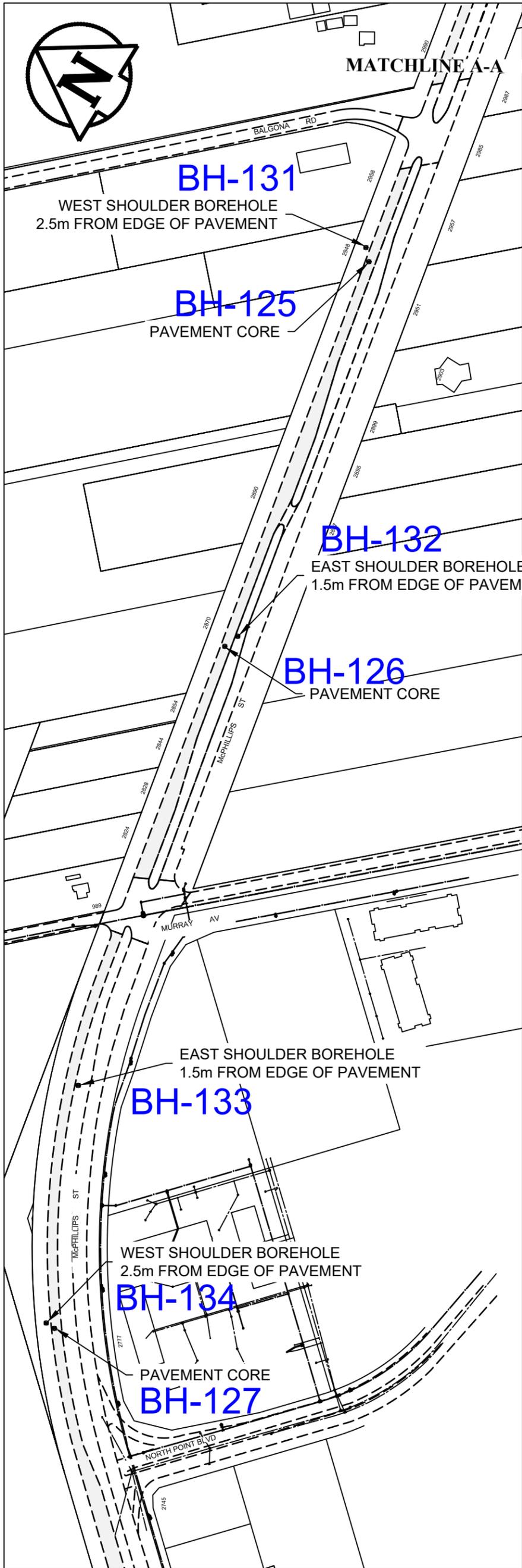
NOTE:  
 - ARLINGTON ST- ALL FULL DEPTH GEOTECHNICAL CORES- DEPTH 2.0m  
 - FOLLOW TABLE 2- BOREHOLES TESTING FREQUENCY

DATE: 10/07/2025  
 DRAWING NO.: 1 of 1

DRAWN BY: K.D  
 SCALE: NTS

2026 LOCAL STREET RENEWAL PROGRAM CORING DRAWING - CONTRACT 4

ARLINGTON ST - RECONSTRUCTION - FROM ENNISKILLEN AV TO INKSTER BLVD



	LDS/WWS
	WATERMAIN
	TESTHOLE

**NOTE-**

- PAVEMENT CORES LOCATED MID SLAB, ALTERNATING LANES
- 1.0m BOREHOLES LOCATED IN SHOULDERS (No testing on materials, boreholes for material description and depths only)

EXACT LOCATIONS OF TEST HOLES TO BE MARKED IN FIELD BY CONTRACT ADMINISTRATOR.

DATE:	DRAWING NO.:
10/20/2025	1 of 1
DRAWN BY:	SCALE:
J.W.	NTS

2026 LOCAL STREET RENEWAL PROGRAM CORING DRAWING - CONTRACT 4

**McPILLIPS ST SOUTH BOUND - MILL & FILL/ SHOULDER RECONSTRUCTION FROM NORTH POINT BV TO EMES RD**

## **Appendix C**

### Core Photographs

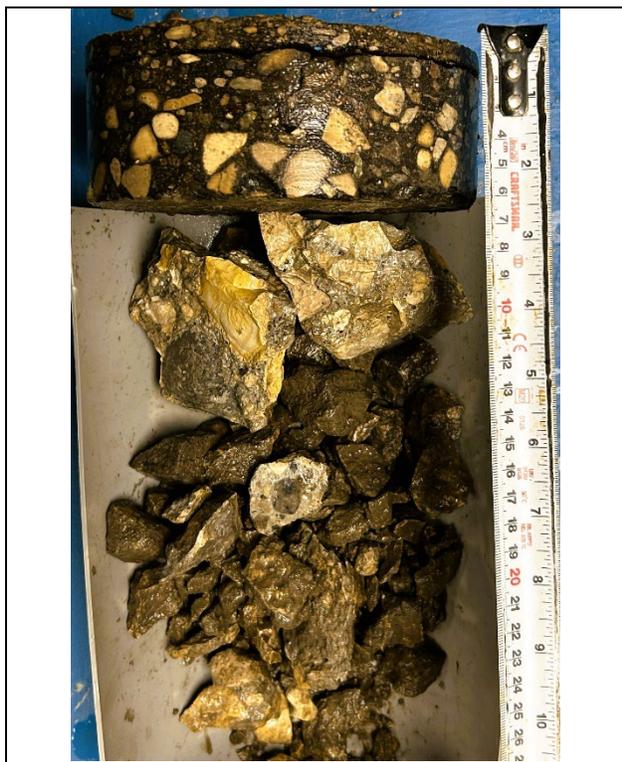


Figure 1 – BH-116 – Arlington St



Figure 2 – BH-117 – Arlington St



Figure 3 – BH-118 – Arlington St



Figure 4 – BH-119 – Arlington St



Figure 5 – BH-120 – Arlington St



Figure 6 – BH-121 – Arlington St



Figure 7 – BH-122 – McPhillips St



Figure 8 – BH-123 – McPhillips St



Figure 9 – BH-124 – McPhillips St



Figure 10 – BH-125 – McPhillips St



Figure 11 – BH-126 – McPhillips St



Figure 12 – BH-127 – McPhillips St

## **Appendix D**

### Borehole Records

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: Arlington St  
 DATE BORED: December 02 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		ASPHALT CONCRETE												
		FILL: fine gravel, fine to coarse sand, granular materials, max aggregate size 19 mm												
		FILL: brown fat clay (CH) fill - some sand												
		Brown fat CLAY (CH) - silty, trace sand		AS	1									
1				BS	2			Sieve/Hydro at 0.8 m G S M C 0% 1% 28% 72%						
				AS	3									
				AS	4									
				AS	5									
2				AS	6									
		<b>End of Borehole</b> • Borehole terminated at a depth of 2.2 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.												

BACKFILL SYMBOL: ASPHALT    GROUT    CONCRETE  
 BENTONITE    DRILL CUTTINGS    SAND    SLOUGH

Drilling Contractor: Paddock Drilling Ltd.    Logged By: BM  
 Drilling Method: 125 mm SSA    Reviewed By: GB  
 Completion Depth: 2.2 m    Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: Arlington St  
 DATE BORED: December 02 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		CONCRETE												
		FILL: brown fat clay (CH) fill - silty, trace sand, trace gravel												
				AS	1									
				BS	2									
				AS	3									
				AS	4									
				AS	5									
		Brown fat CLAY (CH) - some silt, trace sand												
				AS	6									
		<p><b>End of Borehole</b></p> <ul style="list-style-type: none"> <li>Borehole terminated at a depth of 2.2 m.</li> <li>No groundwater seepage or soil sloughing was observed during or upon completion of drilling.</li> <li>Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.</li> </ul>												

BACKFILL SYMBOL:  ASPHALT     GROUT     CONCRETE BENTONITE     DRILL CUTTINGS     SAND     SLOUGH				Drilling Contractor: Paddock Drilling Ltd. Drilling Method: 125 mm SSA Completion Depth: 2.2 m		Logged By: BM Reviewed By: GB Page 1 of 1	
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CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: Arlington St  
 DATE BORED: December 02 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		CONCRETE												
		FILL: black fat clay (CH) fill - trace gravel												
		Brown SILT (ML) - some clay, trace sand												
		Black fat CLAY (CH) - some silt, trace sand, trace gravel		AS	1									
				BS	2			Sieve/Hydro at 0.7 m G 4% S 9% M 12% C 74%						
1				AS	3									
				AS	4									
				AS	5									
2				AS	6									
		<p><b>End of Borehole</b></p> <ul style="list-style-type: none"> <li>Borehole terminated at a depth of 2.1 m.</li> <li>No groundwater seepage or soil sloughing was observed during or upon completion of drilling.</li> <li>Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.</li> </ul>												

BACKFILL SYMBOL

	ASPHALT		GROUT		CONCRETE
	BENTONITE		DRILL CUTTINGS		SAND
	SLOUGH				

Drilling Contractor: Paddock Drilling Ltd.      Logged By: BM  
 Drilling Method: 125 mm SSA      Reviewed By: GB  
 Completion Depth: 2.1 m      Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: Arlington St  
 DATE BORED: December 01 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A

WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		CONCRETE												
		FILL: black fat clay (CH) fill - trace sand												
		Tan SILT (ML) - some clay, trace sand												
		Grey fat CLAY (CH) - silty, trace sand		AS 1										
1				BS 2										
				AS 3										
				AS 4										
				AS 5										
2				AS 6										
		<b>End of Borehole</b> • Borehole terminated at a depth of 2.2 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.												

Sieve/Hydro at 0.8 m  
 G S M C  
 0% 1% 35% 64%

UNDRAINED SHEAR STRENGTH, Cu (kPa)  
 ▲ LABORATORY TEST    ◆ FIELD VANE TEST  
 ★ POCKET PENETROMETER    □ POCKET SHEAR VANE  
 50 kPa    100 kPa    150 kPa    200 kPa  
 WATER CONTENT & ATTERBERG LIMITS    W<sub>p</sub>    W    W<sub>L</sub>  
 ✕ SPT (N-value) BLOWS/0.3m

Water Content (%) and Blow Count  
 10    20    30    40    50    60    70    80



BACKFILL SYMBOL: ASPHALT    GROUT    CONCRETE  
 BENTONITE    DRILL CUTTINGS    SAND    SLOUGH

Drilling Contractor: Paddock Drilling Ltd.    Logged By: BM / LP  
 Drilling Method: 125 mm SSA    Reviewed By: GB  
 Completion Depth: 2.2 m    Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: Arlington St  
 DATE BORED: December 01 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)					BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa			
0		CONCRETE	[Symbol]						▲ LABORATORY TEST      ◆ FIELD VANE TEST ★ POCKET PENETROMETER    □ POCKET SHEAR VANE Water Content & ATTERBERG LIMITS    W <sub>P</sub> W    W <sub>L</sub> ✖ SPT (N-value) BLOWS/0.3m						
		FILL: black fat clay (CH) fill - some sand	[Symbol]						Water Content (%) and Blow Count 10   20   30   40   50   60   70   80						
		Brown fat CLAY (CH) - trace sand	[Symbol]	AS	1										
		Brown lean CLAY (CL) - and silt trace sand	[Symbol]	BS	2			Sieve/Hydro at 0.7 m G 0%   S 1%   M 37%   C 62%							
1		Brown lean CLAY (CL) - and silt trace sand	[Symbol]	AS	3										
		Brown fat CLAY (CH) - trace sand	[Symbol]	AS	4										
		Brown fat CLAY (CH) - trace sand	[Symbol]	AS	5										
2		Brown fat CLAY (CH) - trace sand	[Symbol]	AS	6										
		<b>End of Borehole</b> • Borehole terminated at a depth of 2.1 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.													

Printed Jan 26 2026 08:48:26 SOIL 123317987.GPJ 1/26/26

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: Arlington St  
 DATE BORED: December 01 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		<b>CONCRETE</b>												
		FILL: black fat clay (CH) fill - trace sand												
		Brown fat <b>CLAY (CH)</b> - silty, trace sand, trace organics												
				AS	1									
				BS	2			Sieve/Hydro at 0.7 m G 0% S 1% M 26% C 74%						
1		Tan <b>SILT (ML)</b> - some clay, trace sand												
				AS	3									
				AS	4									
				AS	5									
2		Brown fat <b>CLAY (CH)</b> - some silt												
				AS	6									
		<b>End of Borehole</b> • Borehole terminated at a depth of 2.1 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.												

BACKFILL SYMBOL: ASPHALT    GROUT    CONCRETE  
 BENTONITE    DRILL CUTTINGS    SAND    SLOUGH

Drilling Contractor: Paddock Drilling Ltd.    Logged By: BM / LP  
 Drilling Method: 125 mm SSA    Reviewed By: GB  
 Completion Depth: 2.1 m    Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A

WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		<b>FILL:</b> coarse gravel, fine sand, granular materials, max aggregate size 75 mm - some sand												
				AS	1									
		Grey fat <b>CLAY (CH)</b> - some silt		AS	1									
1		<b>End of Borehole</b> • Borehole terminated at a depth of 1.0 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.												

BACKFILL SYMBOL	ASPHALT	GROUT	CONCRETE
	BENTONITE	DRILL CUTTINGS	SAND
		SLOUGH	

Drilling Contractor: Paddock Drilling Ltd.	Logged By: BM
Drilling Method: 125 mm SSA	Reviewed By: GB
Completion Depth: 1 m	Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)					BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa	LABORATORY TEST		
0		FILL: fine gravel, granular materials, max aggregate size 19 mm - some sand							WATER CONTENT & ATTERBERG LIMITS $W_p$ $W$ $W_L$ * SPT (N-value) BLOWS/0.3m						
		FILL: brown fat clay (CH) fill - some sand							Water Content (%) and Blow Count 10 20 30 40 50 60 70 80						
		Grey fat CLAY (CH) - some silt		AS	1										
1		<b>End of Borehole</b> • Borehole terminated at a depth of 1.0 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.													

BACKFILL SYMBOL: ASPHALT    GROUT    CONCRETE  
 BENTONITE    DRILL CUTTINGS    SAND    SLOUGH

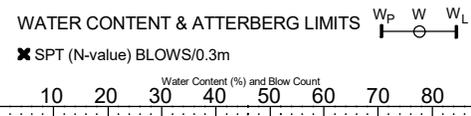
Drilling Contractor: Paddock Drilling Ltd.    Logged By: BM  
 Drilling Method: 125 mm SSA    Reviewed By: GB  
 Completion Depth: 1 m    Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A

WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		FILL: brown fat clay (CH) fill - some sand	[Cross-hatch pattern]											
		Grey fat CLAY (CH) - some silt	[Diagonal lines pattern]	AS	1									
				AS	1									
1		<b>End of Borehole</b> • Borehole terminated at a depth of 1.0 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.												



BACKFILL SYMBOL	[Cross-hatch] ASPHALT	[Diagonal lines] GROUT	[Dotted] CONCRETE
[Solid black] BENTONITE	[Cross-hatch with dots] DRILL CUTTINGS	[Dotted with dots] SAND	[Cross-hatch with dots] SLOUGH

Drilling Contractor: Paddock Drilling Ltd.	Logged By: BM
Drilling Method: 125 mm SSA	Reviewed By: GB
Completion Depth: 1 m	Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A

WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)								BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa	WATER CONTENT & ATTERBERG LIMITS					
0		<b>FILL:</b> fine gravel, granular materials, max aggregate size 19 mm - some sand							▲ LABORATORY TEST      ◆ FIELD VANE TEST ★ POCKET PENETROMETER    □ POCKET SHEAR VANE 50 kPa    100 kPa    150 kPa    200 kPa  Water Content (%) and Blow Count    W <sub>p</sub> W    W <sub>L</sub> ✕ SPT (N-value) BLOWS/0.3m 10    20    30    40    50    60    70    80									
		<b>FILL:</b> brown fat clay (CH) fill - some silt, trace sand																
		Black fat <b>CLAY (CH)</b> - some silt		AS	1													
1		<b>End of Borehole</b> • Borehole terminated at a depth of 1.0 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.		AS	1													
2																		
3																		

BACKFILL SYMBOL: ASPHALT    GROUT    CONCRETE  
 BENTONITE    DRILL CUTTINGS    SAND    SLOUGH

Drilling Contractor: Paddock Drilling Ltd.      Logged By: BM  
 Drilling Method: 125 mm SSA      Reviewed By: GB  
 Completion Depth: 1 m      Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)					BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa			
0		<b>FILL:</b> fine gravel, coarse to fine sand, granular materials, max aggregate size 19 mm							▲ LABORATORY TEST      ◆ FIELD VANE TEST ★ POCKET PENETROMETER    □ POCKET SHEAR VANE 50 kPa      100 kPa      150 kPa      200 kPa						
		<b>FILL:</b> brown fat clay (CH) fill - some silt, trace sand							WATER CONTENT & ATTERBERG LIMITS      W <sub>p</sub> W    W <sub>L</sub> ✕ SPT (N-value) BLOWS/0.3m 10    20    30    40    50    60    70    80 <small>Water Content (%) and Blow Count</small>						
		Black fat <b>CLAY (CH)</b> - some silt		AS	1										
1		<b>End of Borehole</b> • Borehole terminated at a depth of 1.0 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.		AS	1										
2															
3															

BACKFILL SYMBOL	ASPHALT	GROUT	CONCRETE
BENTONITE	DRILL CUTTINGS	SAND	SLOUGH

Drilling Contractor: Paddock Drilling Ltd.	Logged By: BM
Drilling Method: 125 mm SSA	Reviewed By: GB
Completion Depth: 1 m	Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A  
 WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		FILL: fine gravel, granular materials, max aggregate size 19 mm												
		FILL: brown fat clay (CH) fill - some silt, trace sand												
		Black fat CLAY (CH) - some silt		AS	1									
				AS	1									
1		<b>End of Borehole</b> <ul style="list-style-type: none"> <li>Borehole terminated at a depth of 1.0 m.</li> <li>No groundwater seepage or soil sloughing was observed during or upon completion of drilling.</li> <li>Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.</li> </ul>												

BACKFILL SYMBOL: ASPHALT    GROUT    CONCRETE  
 BENTONITE    DRILL CUTTINGS    SAND    SLOUGH

Drilling Contractor: Paddock Drilling Ltd.    Logged By: BM  
 Drilling Method: 125 mm SSA    Reviewed By: GB  
 Completion Depth: 1 m    Page 1 of 1

CLIENT: City of Winnipeg  
 PROJECT: 2026 Local Street Renewal Program – Contract 4  
 LOCATION: McPhillips St Shoulder  
 DATE BORED: December 04 2025

PROJECT NO.: 123317987  
 BH ELEVATION: N/A  
 DATUM: N/A

WATER LEVEL: N/A

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION (USCS)	STRATA PLOT	SAMPLES				OTHER TESTS / REMARKS	UNDRAINED SHEAR STRENGTH, Cu (kPa)				BACKFILL	ELEVATION (m)
				TYPE	NUMBER	RECOVERY (mm) or TCR %	N-VALUE or RQD %		50 kPa	100 kPa	150 kPa	200 kPa		
0		FILL: black fat clay (CH) fill - some silt, trace sand												
		Black fat CLAY (CH) - some silt, trace sand		AS	1									
				AS	1									
1		<b>End of Borehole</b> • Borehole terminated at a depth of 1.0 m. • No groundwater seepage or soil sloughing was observed during or upon completion of drilling. • Borehole backfilled in accordance with the City of Winnipeg Street Cuts Manual.												

BENTONITE	ASPHALT	GROUT	CONCRETE
DRILL CUTTINGS	SAND	SLOUGH	

Drilling Contractor: Paddock Drilling Ltd.	Logged By: BM
Drilling Method: 125 mm SSA	Reviewed By: GB
Completion Depth: 1 m	Page 1 of 1

## **Appendix E**

### Laboratory Test Reports

**Table 2 – Core Compressive Strength Test Results**

Core No.	Street	Diameter (mm)	Length (mm)	L/D Ratio	Correction Factor	Peak Load (kN)	Compressive Strength (MPa)	
							Measured	Corrected
122	McPhillips St	100.77	188.66	1.872	0.9898	519.79	65.17	64.51
123	McPhillips St	100.74	174.98	1.737	0.9790	543.01	68.13	66.69
124	McPhillips St	100.77	161.03	1.598	0.9678	484.39	60.74	58.78
125	McPhillips St	100.89	191.96	1.903	0.9922	510.41	63.85	63.35
126	McPhillips St	100.77	177.76	1.764	0.9811	513.12	64.34	63.12
127	McPhillips St	100.80	107.44	1.066	0.8858	635.22	79.60	70.51

# ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 1

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.09

SAMPLED BY: Stantec Consulting Ltd.

SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Madison Murphy

**MATERIAL IDENTIFICATION**

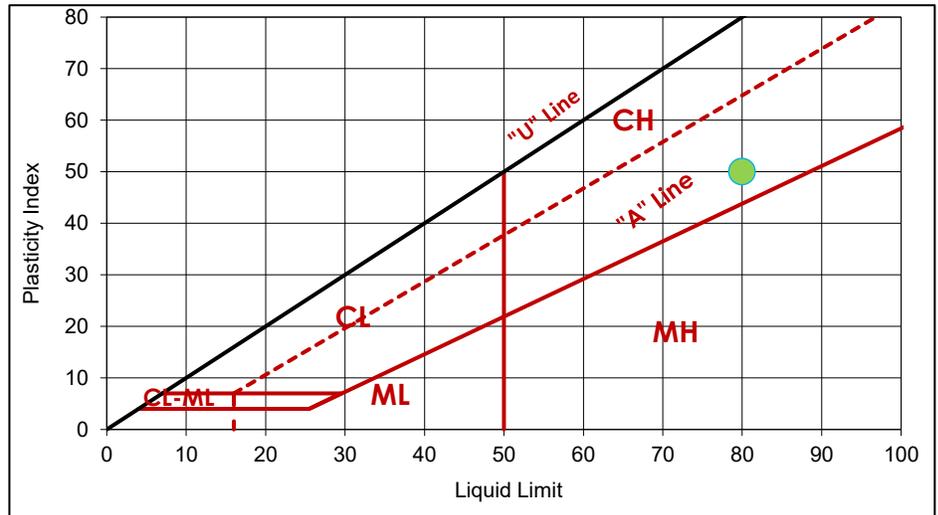
CLIENT FIELD ID BH-116, 0.8 m

STANTEC SAMPLE NO. 2688

	LIQUID LIMIT	
TRIAL	1	2
BLOWS	26	26
MC (%)	80	80

	PLASTIC LIMIT	
TRIAL	1	2
MC (%)	30	30

LIQUID LIMIT, LL	80
PLASTIC LIMIT, PL	30
PLASTICITY INDEX, PI	50
AS REC'D MC (%)	26.2



COMMENTS  
 No comments.

REPORT DATE 2026.Jan.12

REVIEWED BY   
 Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided on written request. The data presented is for sole use of client stipulated above. Stantec is not responsible, nor can be held liable, for the use of this report by any other party, with or without the knowledge of Stantec.

## ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 2

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Brent McAughey

**MATERIAL IDENTIFICATION**

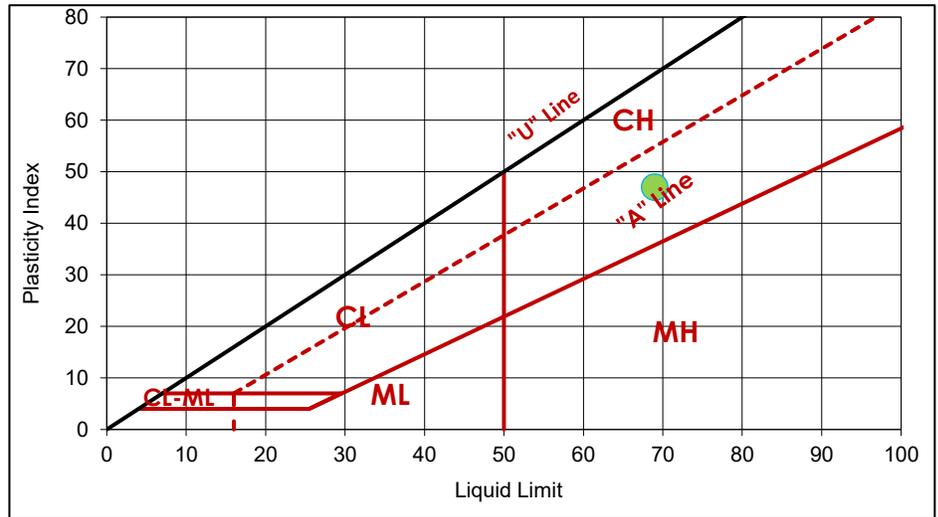
CLIENT FIELD ID BH-117, 0.8 m

STANTEC SAMPLE NO. 2689

	LIQUID LIMIT	
TRIAL	1	2
BLOWS	27	27
MC (%)	68	68

	PLASTIC LIMIT	
TRIAL	1	2
MC (%)	22	22

LIQUID LIMIT, LL	69
PLASTIC LIMIT, PL	22
PLASTICITY INDEX, PI	47
AS REC'D MC (%)	6.8



COMMENTS  
 No comments.

REPORT DATE 2026.Jan.12

REVIEWED BY   
 Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

# ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 3

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Brent McAughey

**MATERIAL IDENTIFICATION**

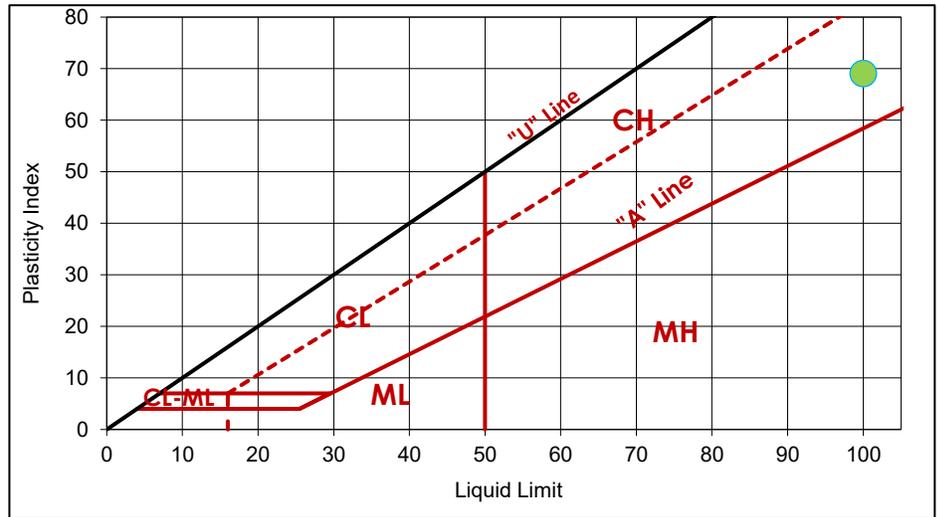
CLIENT FIELD ID BH-118, 0.7 m

STANTEC SAMPLE NO. 2690

	LIQUID LIMIT	
TRIAL	1	2
BLOWS	25	25
MC (%)	100	100

	PLASTIC LIMIT	
TRIAL	1	2
MC (%)	31	31

LIQUID LIMIT, LL	100
PLASTIC LIMIT, PL	31
PLASTICITY INDEX, PI	69
AS REC'D MC (%)	34.0



**COMMENTS**

No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

# ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 4

DATE SAMPLED: 2025.Dec.01

DATE RECEIVED: 2025.Dec.01

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Brent McAughey

**MATERIAL IDENTIFICATION**

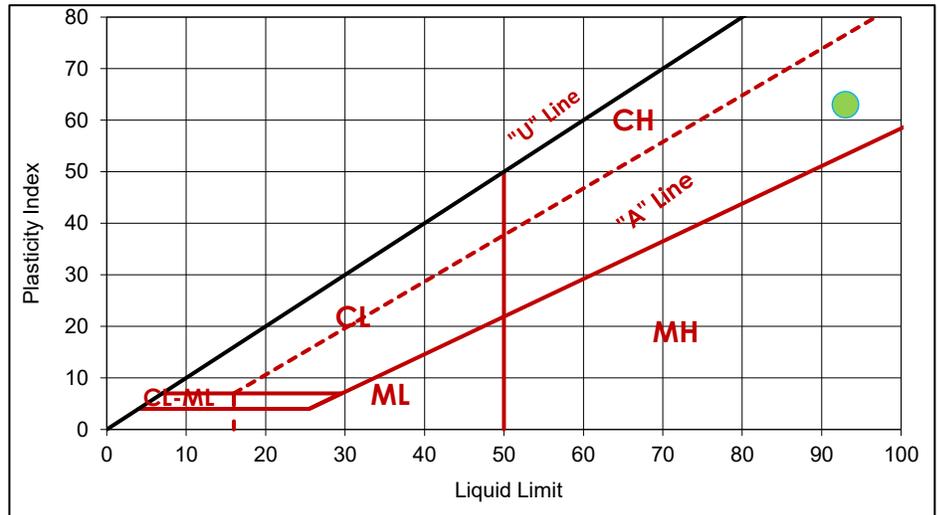
CLIENT FIELD ID BH-119, 0.8 m

STANTEC SAMPLE NO. 2691

TRIAL	LIQUID LIMIT	
	1	2
BLOWS	22	22
MC (%)	95	95

TRIAL	PLASTIC LIMIT	
	1	2
MC (%)	30	30

LIQUID LIMIT, LL	93
PLASTIC LIMIT, PL	30
PLASTICITY INDEX, PI	63
AS REC'D MC (%)	28.3



COMMENTS  
 No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 5

DATE SAMPLED: 2025.Dec.01

DATE RECEIVED: 2025.Dec.01

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Simran Kaur

**MATERIAL IDENTIFICATION**

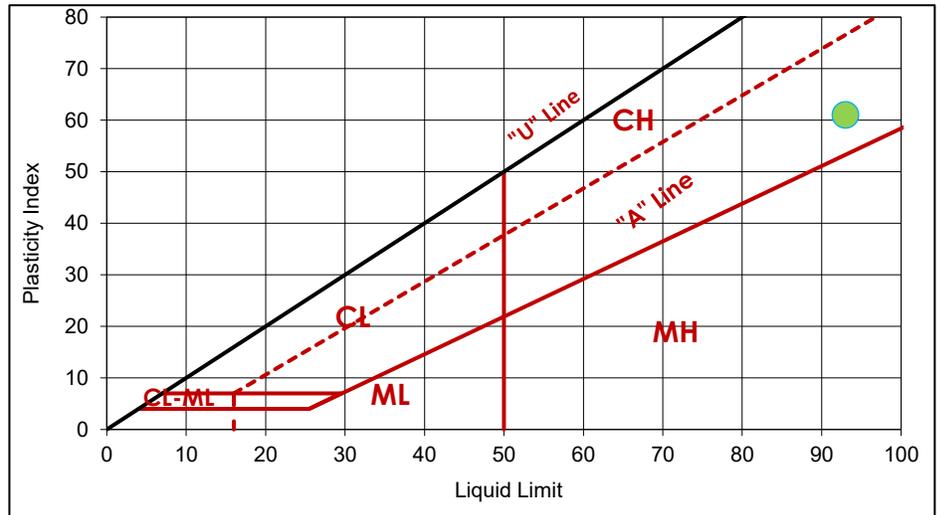
CLIENT FIELD ID BH-120, 0.7 m

STANTEC SAMPLE NO. 2692

	LIQUID LIMIT	
TRIAL	1	2
BLOWS	22	22
MC (%)	94	94

	PLASTIC LIMIT	
TRIAL	1	2
MC (%)	32	32

LIQUID LIMIT, LL	93
PLASTIC LIMIT, PL	32
PLASTICITY INDEX, PI	61
AS REC'D MC (%)	24.3



**COMMENTS**

No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

# ASTM D4318 - LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS (LL METHOD B - ONE-POINT)

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 6

DATE SAMPLED: 2025.Dec.01

DATE RECEIVED: 2025.Dec.01

DATE TESTED: 2026.Jan.06

SAMPLED BY: Stantec Consulting Ltd.

SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Simran Kaur

**MATERIAL IDENTIFICATION**

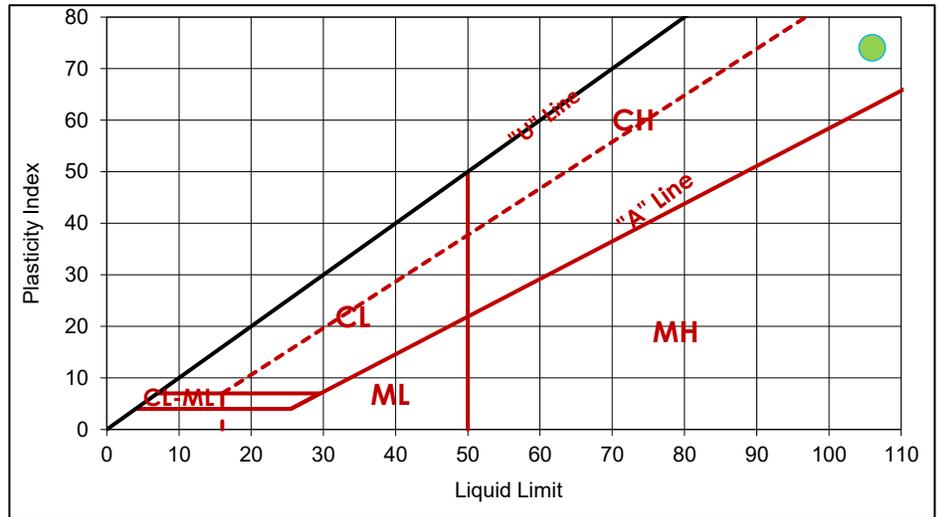
CLIENT FIELD ID BH-121, 0.7 m

STANTEC SAMPLE NO. 2693

	LIQUID LIMIT	
TRIAL	1	2
BLOWS	28	28
MC (%)	104	104

	PLASTIC LIMIT	
TRIAL	1	2
MC (%)	32	32

LIQUID LIMIT, LL	106
PLASTIC LIMIT, PL	32
PLASTICITY INDEX, PI	74
AS REC'D MC (%)	34.3



**COMMENTS**

No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D7928 - PARTICLE-SIZE DISTRIBUTION OF FINE-GRAINED SOILS USING THE SEDIMENTATION ANALYSIS

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program  
 - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 1

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2025.Dec.30

SAMPLED BY: Stantec Consulting Ltd.

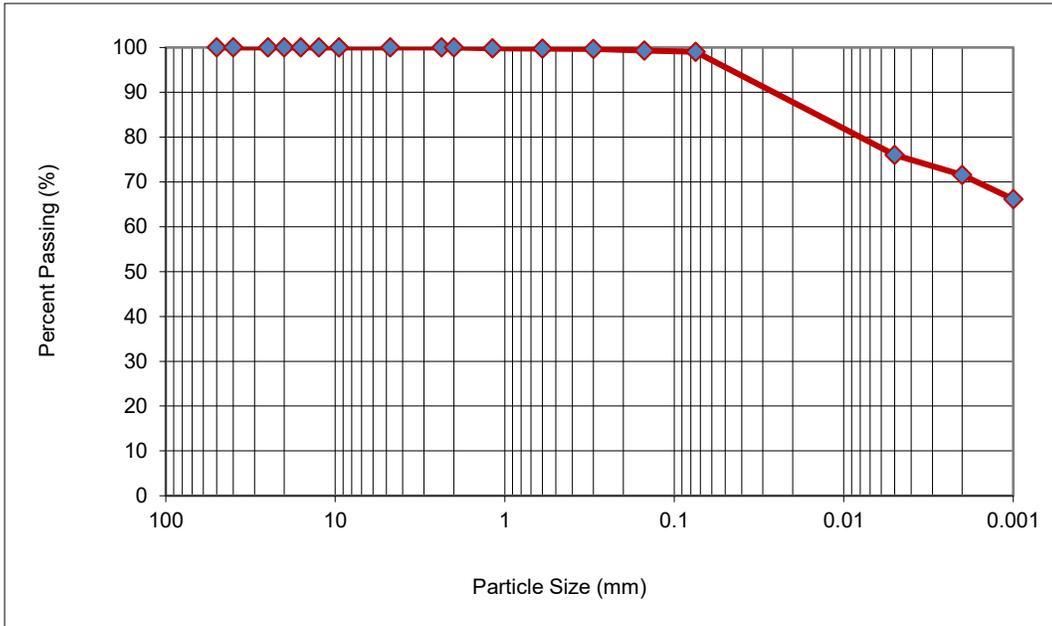
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Larry Presado

**MATERIAL IDENTIFICATION**

CLIENT FIELD ID BH-116, 0.8 m

STANTEC SAMPLE NO. 2688



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.8
0.600	99.8
0.300	99.7
0.150	99.3
0.075	99.1
0.005	76.0
0.002	71.5
0.001	66.2

Gravel	Sand			Silt	Clay	Colloids
	Coarse	Medium	Fine			
0.0	0.0	0.3	0.6	27.6	71.5	66.2

**COMMENTS**

No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided on written request. The data presented is for sole use of client stipulated above. Stantec is not responsible, nor can be held liable, for the use of this report by any other party, with or without the knowledge of Stantec.

## ASTM D7928 - PARTICLE-SIZE DISTRIBUTION OF FINE-GRAINED SOILS USING THE SEDIMENTATION ANALYSIS

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program  
 - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 2

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2025.Dec.30

SAMPLED BY: Stantec Consulting Ltd.

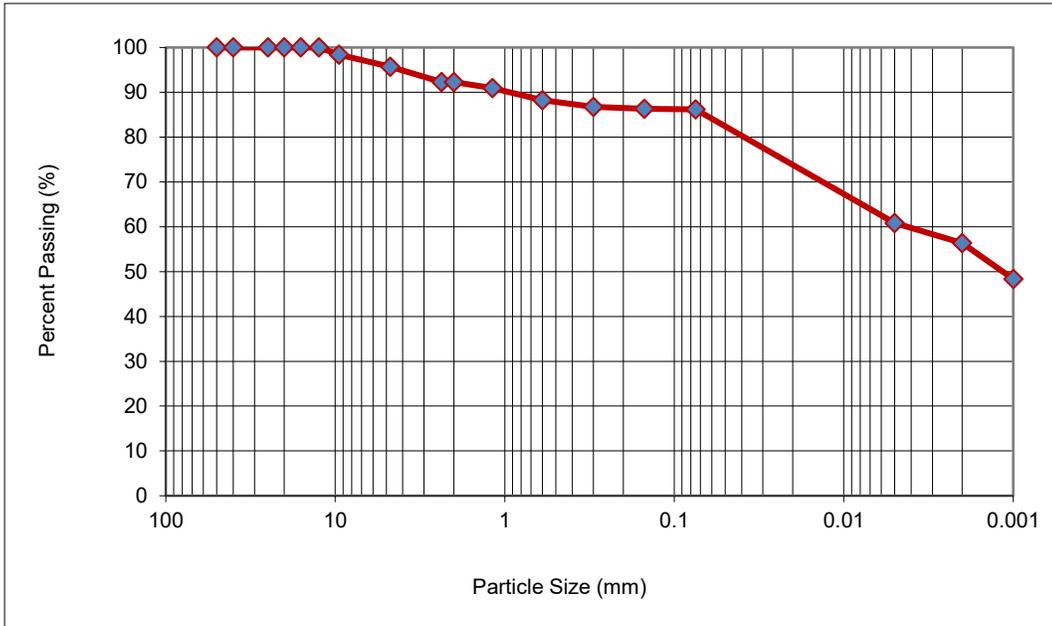
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Larry Presado

**MATERIAL IDENTIFICATION**

CLIENT FIELD ID BH-117, 0.8 m

STANTEC SAMPLE NO. 2689



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	98.4
4.75	95.7
2.36	92.3
2.00	92.3
1.18	90.9
0.600	88.2
0.300	86.8
0.150	86.3
0.075	86.2
0.005	60.9
0.002	56.4
0.001	48.4

Gravel	Sand			Silt	Clay	Colloids
	Coarse	Medium	Fine			
4.3	3.4	4.9	1.2	29.8	56.4	48.4

**COMMENTS**

No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D7928 - PARTICLE-SIZE DISTRIBUTION OF FINE-GRAINED SOILS USING THE SEDIMENTATION ANALYSIS

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program  
 - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 3

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2025.Dec.30

SAMPLED BY: Stantec Consulting Ltd.

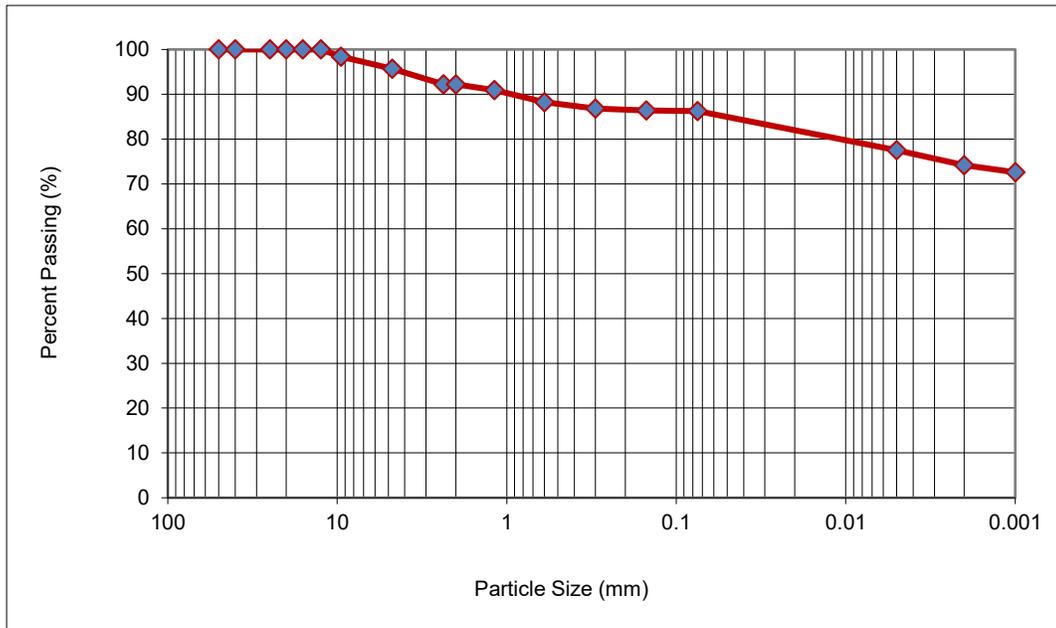
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Larry Presado

**MATERIAL IDENTIFICATION**

CLIENT FIELD ID BH-118, 0.7 m

STANTEC SAMPLE NO. 2690



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	98.4
4.75	95.7
2.36	92.2
2.00	92.2
1.18	90.9
0.600	88.3
0.300	86.8
0.150	86.4
0.075	86.3
0.005	77.5
0.002	74.2
0.001	72.6

Gravel	Sand			Silt	Clay	Colloids
	Coarse	Medium	Fine			
4.3	3.5	4.8	1.1	12.1	74.2	72.6

COMMENTS  
 No comments.

REPORT DATE 2026.Jan.12

  
 REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D7928 - PARTICLE-SIZE DISTRIBUTION OF FINE-GRAINED SOILS USING THE SEDIMENTATION ANALYSIS

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program  
 - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 4

DATE SAMPLED: 2025.Dec.01

DATE RECEIVED: 2025.Dec.01

DATE TESTED: 2025.Dec.30

SAMPLED BY: Stantec Consulting Ltd.

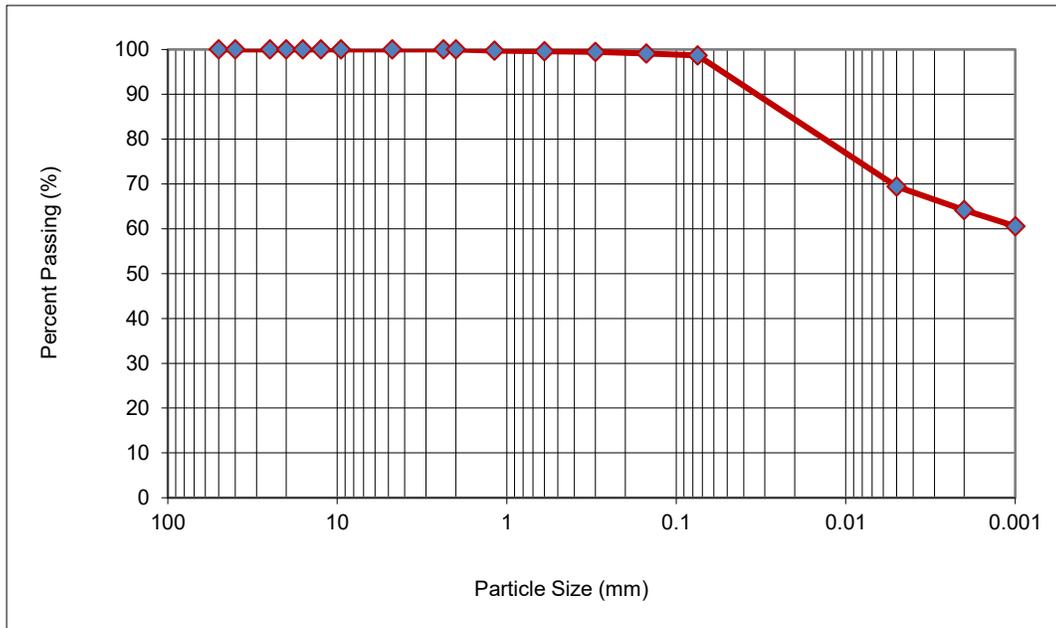
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Larry Presado

**MATERIAL IDENTIFICATION**

CLIENT FIELD ID BH-119, 0.8 m

STANTEC SAMPLE NO. 2691





## ASTM D7928 - PARTICLE-SIZE DISTRIBUTION OF FINE-GRAINED SOILS USING THE SEDIMENTATION ANALYSIS

TO City of Winnipeg, Public Works Dept.  
 104 - 1155 Pacific Ave.  
 Winnipeg, Manitoba  
 R3E 3P1

PROJECT 2026 Local Street Renewal Program  
 - Contract 4

PROJECT NO. 123317987

ATTN Erik Hansen

REPORT NO. 6

DATE SAMPLED: 2025.Dec.01

DATE RECEIVED: 2025.Dec.01

DATE TESTED: 2025.Dec.30

SAMPLED BY: Stantec Consulting Ltd.

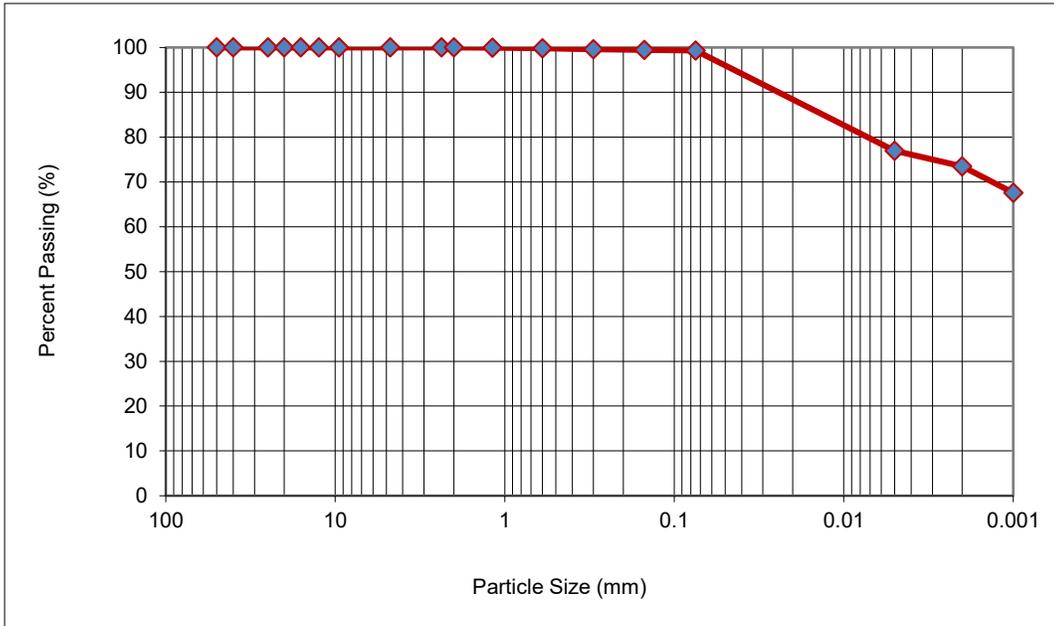
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Larry Presado

**MATERIAL IDENTIFICATION**

CLIENT FIELD ID BH-121, 0.7 m

STANTEC SAMPLE NO. 2693



Sieve Size (mm)	% Passing
50.0	100.0
40.0	100.0
25.0	100.0
20.0	100.0
16.0	100.0
12.5	100.0
9.5	100.0
4.75	100.0
2.36	100.0
2.00	100.0
1.18	99.9
0.600	99.8
0.300	99.6
0.150	99.4
0.075	99.3
0.005	76.9
0.002	73.5
0.001	67.6

Gravel	Sand			Silt	Clay	Colloids
	Coarse	Medium	Fine			
0.0	0.0	0.3	0.4	25.8	73.5	67.6

COMMENTS  
 No comments.

REPORT DATE 2026.Jan.12

REVIEWED BY   
 Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

# PROCTOR TEST REPORT

TO City of Winnipeg  
 104 - 1155 Pacific Ave.  
 Winnipeg, MB  
 R3E 2P1

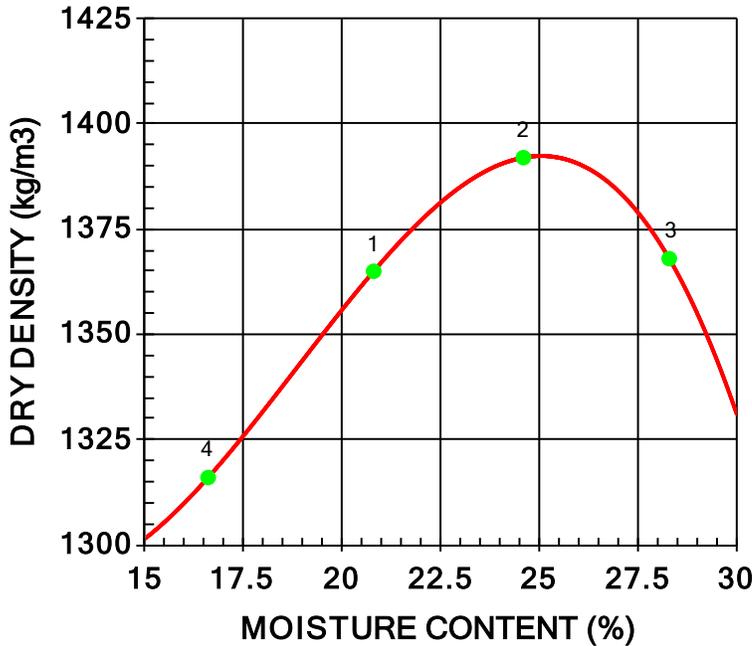
CLIENT City of Winnipeg  
 C.C.

ATTN: Erik Hansen

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987-4 - Contract 4  
 PROCTOR NO. 1 DATE SAMPLED 2025.Dec.02 DATE RECEIVED 2025.Dec.02 DATE TESTED 2025.Dec.29

INSITU MOISTURE	52.5 %	COMPACTION STANDARD	Standard Proctor, ASTM
TESTED BY	Donald Eliazar		D698
MATERIAL IDENTIFICATION		COMPACTION PROCEDURE	A: 101.6mm Mold, Passing 4.75mm
MAJOR COMPONENT	Subgrade	RAMMER TYPE	Manual
SIZE	Fat Clay (CH)	PREPARATION	Moist
DESCRIPTION		OVERSIZE CORRECTION METHOD	None
SUPPLIER	Existing Materials	RETAINED 4.75mm SCREEN	N/A %
SOURCE	BH-116, 0.8 m below grade		



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1649	1365	20.8
2	1734	1392	24.6
3	1755	1368	28.3
4	1534	1316	16.6

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1390	25.0
OVERSIZE CORRECTED		

**COMMENTS**

Stantec Sample No. 2688.

# PROCTOR TEST REPORT

TO City of Winnipeg  
 104 - 1155 Pacific Ave.  
 Winnipeg, MB  
 R3E 2P1

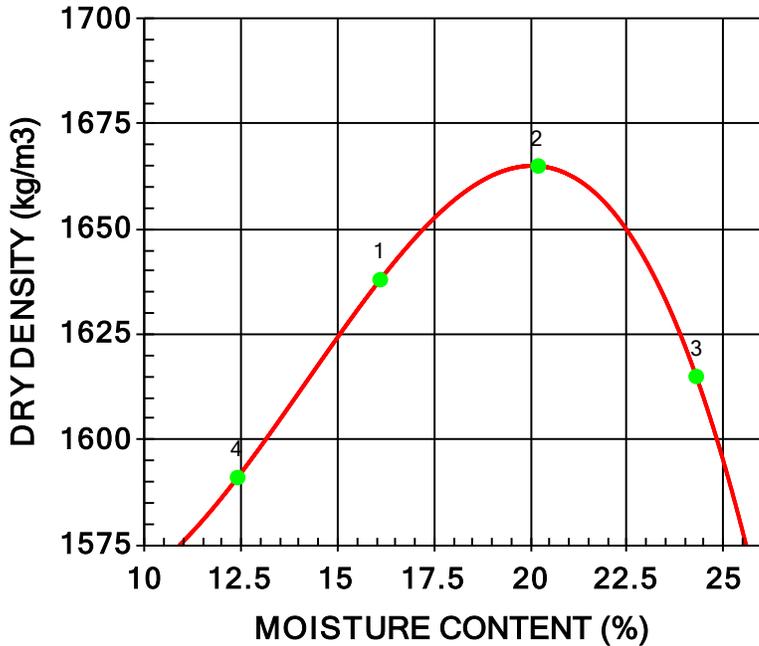
CLIENT City of Winnipeg  
 C.C.

ATTN: Erik Hansen

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987-4 - Contract 4  
 PROCTOR NO. 2 DATE SAMPLED 2025.Dec.02 DATE RECEIVED 2025.Dec.02 DATE TESTED 2025.Dec.29

INSITU MOISTURE	45.5 %	COMPACTION STANDARD	Standard Proctor, ASTM
TESTED BY	Donald Eliazar		D698
MATERIAL IDENTIFICATION		COMPACTION PROCEDURE	A: 101.6mm Mold, Passing 4.75mm
MAJOR COMPONENT	Subgrade	RAMMER TYPE	Manual
SIZE	Fat Clay (CH)	PREPARATION	Moist
DESCRIPTION		OVERSIZE CORRECTION METHOD	None
SUPPLIER	Existing Materials	RETAINED 4.75mm SCREEN	N/A %
SOURCE	BH-117, 0.8 m below grade		



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1902	1638	16.1
2	2001	1665	20.2
3	2007	1615	24.3
4	1788	1591	12.4

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1660	20.0
OVERSIZE CORRECTED		

**COMMENTS**

Stantec Sample No. 2689.

# PROCTOR TEST REPORT

TO City of Winnipeg  
 104 - 1155 Pacific Ave.  
 Winnipeg, MB  
 R3E 2P1

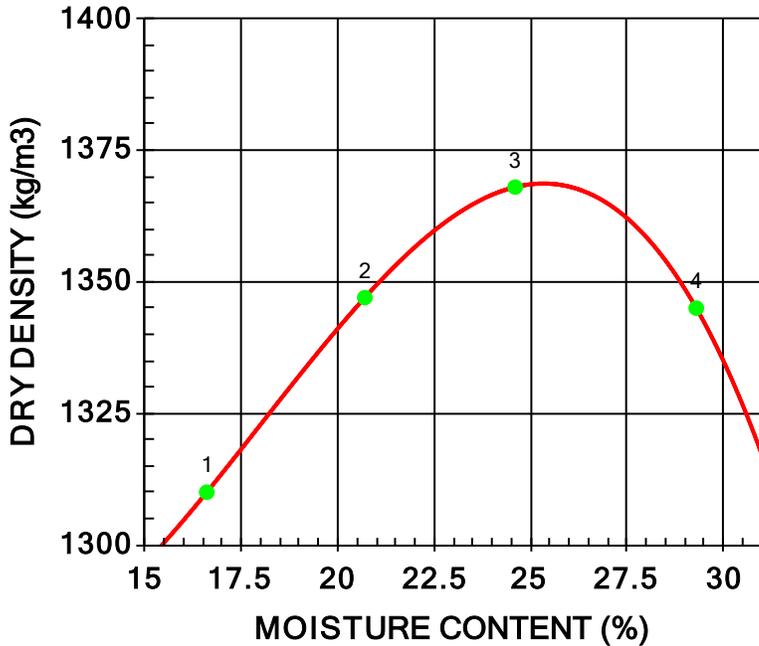
CLIENT City of Winnipeg  
 C.C.

ATTN: Erik Hansen

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987-4 - Contract 4  
 PROCTOR NO. 3 DATE SAMPLED 2025.Dec.02 DATE RECEIVED 2025.Dec.02 DATE TESTED 2025.Dec.29

INSITU MOISTURE	47.3 %	COMPACTION STANDARD	Standard Proctor, ASTM
TESTED BY	Donald Eliazar		D698
MATERIAL IDENTIFICATION		COMPACTION PROCEDURE	A: 101.6mm Mold, Passing 4.75mm
MAJOR COMPONENT	Subgrade	RAMMER TYPE	Manual
SIZE	Fat Clay (CH)	PREPARATION	Moist
DESCRIPTION		OVERSIZE CORRECTION METHOD	None
SUPPLIER	Existing Materials	RETAINED 4.75mm SCREEN	N/A %
SOURCE	BH-118, 0.7 m below grade		



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1527	1310	16.6
2	1626	1347	20.7
3	1704	1368	24.6
4	1739	1345	29.3

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1370	25.5
OVERSIZE CORRECTED		

**COMMENTS**

Stantec Sample No. 2690.

# PROCTOR TEST REPORT

TO City of Winnipeg  
 104 - 1155 Pacific Ave.  
 Winnipeg, MB  
 R3E 2P1

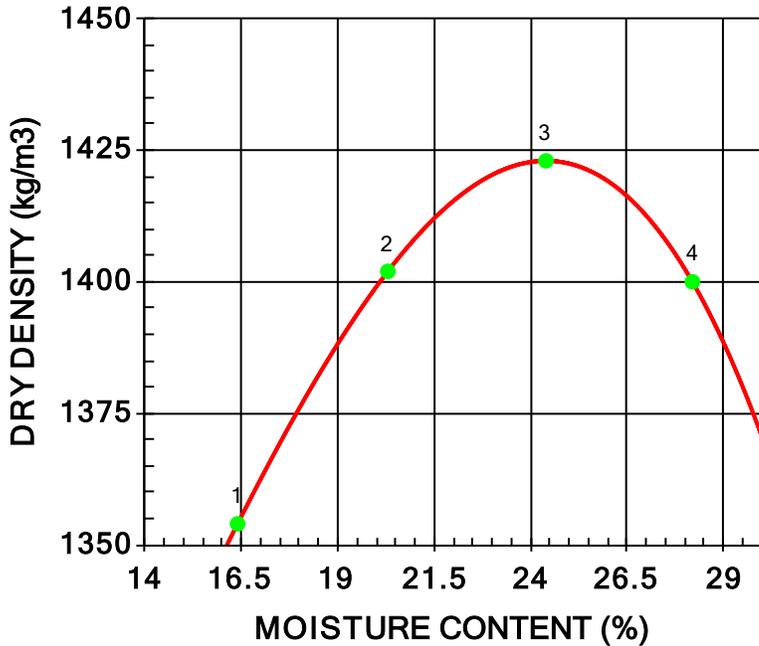
CLIENT City of Winnipeg  
 C.C.

ATTN: Erik Hansen

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987-4 - Contract 4  
 PROCTOR NO. 4 DATE SAMPLED 2025.Dec.01 DATE RECEIVED 2025.Dec.01 DATE TESTED 2025.Dec.29

INSITU MOISTURE	52.1 %	COMPACTION STANDARD	Standard Proctor, ASTM
TESTED BY	Donald Eliazar		D698
MATERIAL IDENTIFICATION		COMPACTION PROCEDURE	A: 101.6mm Mold, Passing 4.75mm
MAJOR COMPONENT	Subgrade	RAMMER TYPE	Manual
SIZE	Fat Clay (CH)	PREPARATION	Moist
DESCRIPTION		OVERSIZE CORRECTION METHOD	None
SUPPLIER	Existing Materials	RETAINED 4.75mm SCREEN	N/A %
SOURCE	BH-119, 0.8 m below grade		



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1576	1354	16.4
2	1687	1402	20.3
3	1770	1423	24.4
4	1795	1400	28.2

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1420	24.5
OVERSIZE CORRECTED		

**COMMENTS**

Stantec Sample No. 2691.

# PROCTOR TEST REPORT

TO City of Winnipeg  
 104 - 1155 Pacific Ave.  
 Winnipeg, MB  
 R3E 2P1

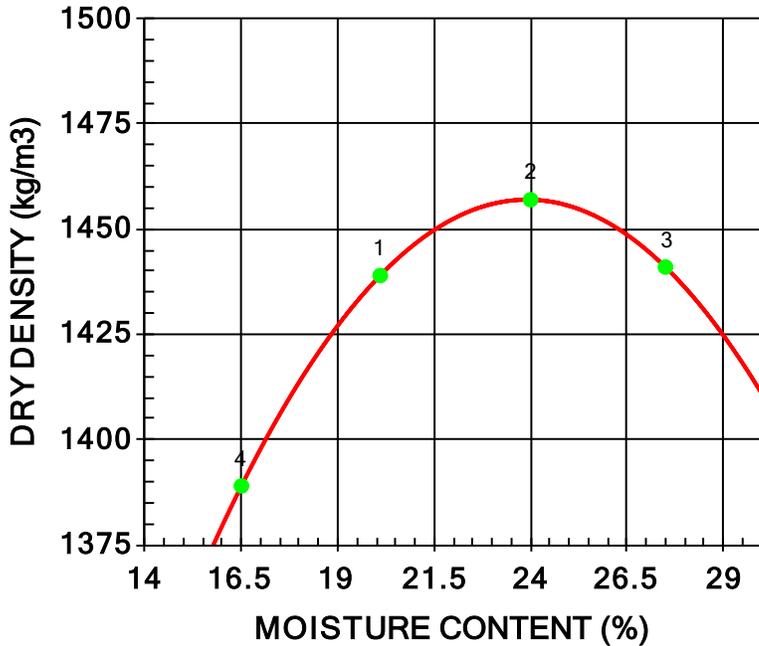
CLIENT City of Winnipeg  
 C.C.

ATTN: Erik Hansen

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987-4 - Contract 4  
 PROCTOR NO. 5 DATE SAMPLED 2025.Dec.01 DATE RECEIVED 2025.Dec.01 DATE TESTED 2025.Dec.29

INSITU MOISTURE	53.3 %	COMPACTION STANDARD	Standard Proctor, ASTM
TESTED BY	Donald Eliazar		D698
MATERIAL IDENTIFICATION		COMPACTION PROCEDURE	A: 101.6mm Mold, Passing 4.75mm
MAJOR COMPONENT	Subgrade	RAMMER TYPE	Manual
SIZE	Fat Clay (CH)	PREPARATION	Moist
DESCRIPTION		OVERSIZE CORRECTION METHOD	None
SUPPLIER	Existing Materials	RETAINED 4.75mm SCREEN	N/A %
SOURCE	BH-120, 0.7 m below grade		



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1728	1439	20.1
2	1807	1457	24.0
3	1837	1441	27.5
4	1618	1389	16.5

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1460	24.0
OVERSIZE CORRECTED		

**COMMENTS**

Stantec Sample No. 2692.



Jason Thompson, C.E.T.

# PROCTOR TEST REPORT

TO City of Winnipeg  
 104 - 1155 Pacific Ave.  
 Winnipeg, MB  
 R3E 2P1

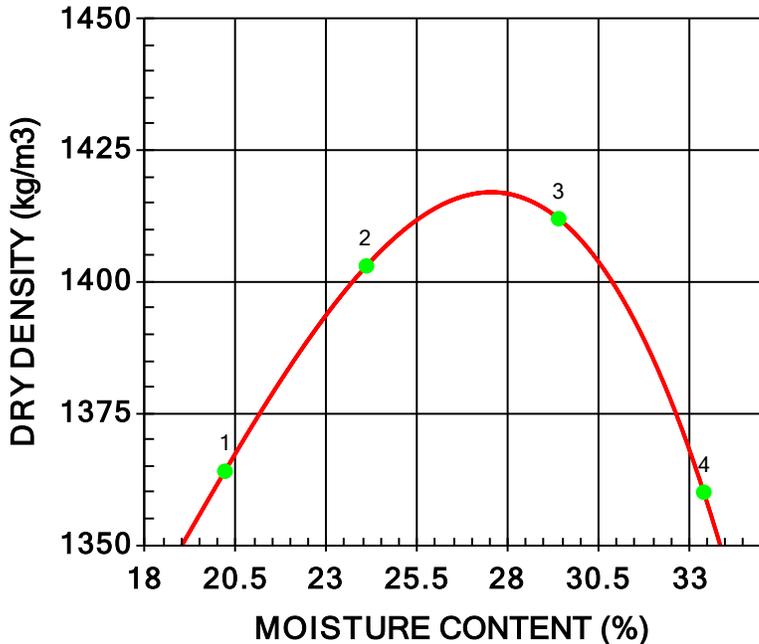
CLIENT City of Winnipeg  
 C.C.

ATTN: Erik Hansen

PROJECT 2026 Local Street Renewal Program - Contract 4

PROJECT NO. 123317987-4 - Contract 4  
 PROCTOR NO. 6 DATE SAMPLED 2025.Dec.01 DATE RECEIVED 2025.Dec.01 DATE TESTED 2025.Dec.29

INSITU MOISTURE	42.9 %	COMPACTION STANDARD	Standard Proctor, ASTM
TESTED BY	Donald Eliazar		D698
MATERIAL IDENTIFICATION		COMPACTION PROCEDURE	A: 101.6mm Mold, Passing 4.75mm
MAJOR COMPONENT	Subgrade	RAMMER TYPE	Manual
SIZE	Fat Clay (CH)	PREPARATION	Moist
DESCRIPTION		OVERSIZE CORRECTION METHOD	None
SUPPLIER	Existing Materials	RETAINED 4.75mm SCREEN	N/A %
SOURCE	BH-121, 0.7 m below grade		



TRIAL NUMBER	WET DENSITY (kg/m³)	DRY DENSITY (kg/m³)	MOISTURE CONTENT (%)
1	1639	1364	20.2
2	1741	1403	24.1
3	1827	1412	29.4
4	1814	1360	33.4

	MAXIMUM DRY DENSITY (kg/m³)	OPTIMUM MOISTURE CONTENT (%)
CALCULATED	1420	27.5
OVERSIZE CORRECTED		

**COMMENTS**

Stantec Sample No. 2693.

## ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO City of Winnipeg  
 104 - 1155 Pacific Avenue  
 Winnipeg, Manitoba  
 R3E 2P1

PROJECT 2026 Local Street Renewal Program -  
 Contract 4

PROJECT NO. 123317987-4

ATTN Erik Hansen

REPORT NO. 1

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

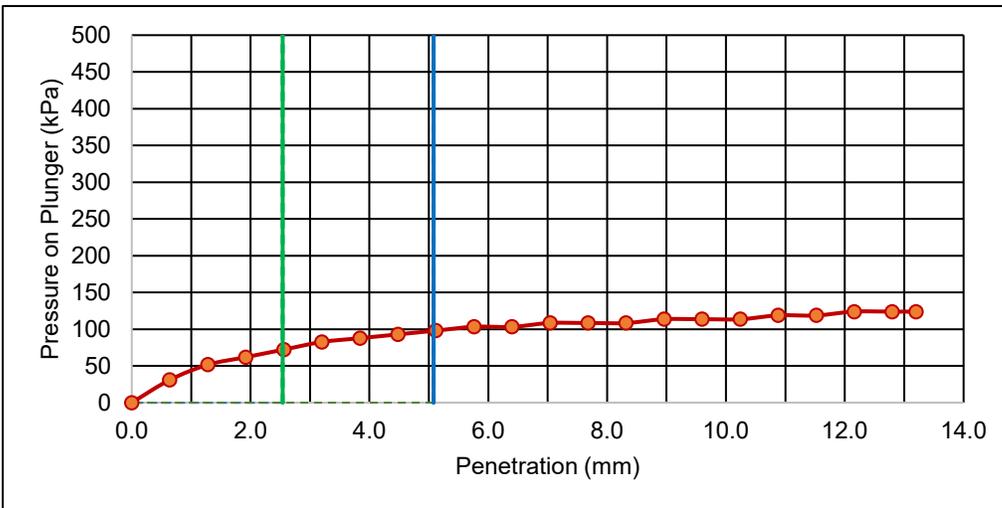
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Donald Eliazar

### MATERIAL IDENTIFICATION

MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Bore hole
MATERIAL TYPE	Fat Clay (CH)	SAMPLE LOCATION	BH-116, 0.8 m
SPECIFICATION ID	Not Applicable	STANTEC SAMPLE NO.	2688

IMMERSION PERIOD	96 ± 2 hr	TARGET MAX. DRY DENSITY	1390 kg/m <sup>3</sup>
CONDITION OF SAMPLE	Soaked	TARGET OPTIMUM MOISTURE	25.0 %
SURCHARGE MASS	4.54 kg		
+19 mm OVERSIZE	0 %	AS-COMPACTED DRY DENSITY	1320 kg/m <sup>3</sup>
SWELL OF SAMPLE	9.79 %	AS-COMPACTED MOISTURE	25.1 %
POST-TEST MOISTURE	53.0 %	AS-COMPACTED % COMPACTION	95 %



**CBR VALUE AT 2.54 mm  
PENETRATION**  
1.0

**CBR VALUE AT 5.08 mm  
PENETRATION**  
1.0

### COMMENTS

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.



REPORT DATE 2026.Jan.13

REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO City of Winnipeg  
 104 - 1155 Pacific Avenue  
 Winnipeg, Manitoba  
 R3E 2P1

PROJECT 2026 Local Street Renewal Program -  
 Contract 4

PROJECT NO. 123317987-4

ATTN Erik Hansen

REPORT NO. 2

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

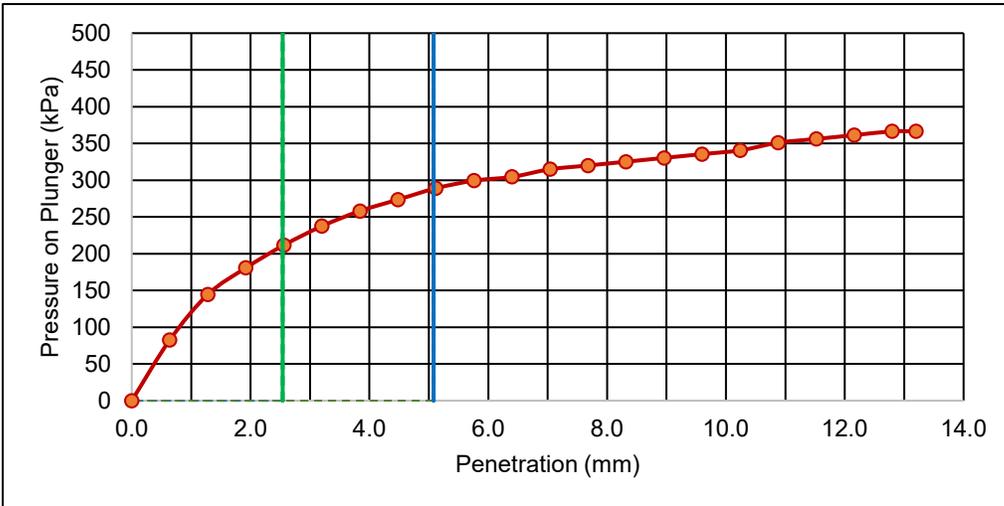
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Donald Eliazar

**MATERIAL IDENTIFICATION**

MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Bore hole
MATERIAL TYPE	Fat Clay (CH)	SAMPLE LOCATION	BH-117, 0.8 m
SPECIFICATION ID	Not Applicable	STANTEC SAMPLE NO.	2689

IMMERSION PERIOD	96 ± 2 hr	TARGET MAX. DRY DENSITY	1660 kg/m <sup>3</sup>
CONDITION OF SAMPLE	Soaked	TARGET OPTIMUM MOISTURE	20.0 %
SURCHARGE MASS	4.54 kg		
+19 mm OVERSIZE	0 %	AS-COMPACTED DRY DENSITY	1579 kg/m <sup>3</sup>
SWELL OF SAMPLE	3.38 %	AS-COMPACTED MOISTURE	19.9 %
POST-TEST MOISTURE	27.8 %	AS-COMPACTED % COMPACTION	95 %



**CBR VALUE AT 2.54 mm  
PENETRATION**  
3.1

**CBR VALUE AT 5.08 mm  
PENETRATION**  
2.9

**COMMENTS**

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.



REPORT DATE 2026.Jan.13

REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO City of Winnipeg  
 104 - 1155 Pacific Avenue  
 Winnipeg, Manitoba  
 R3E 2P1

PROJECT 2026 Local Street Renewal Program -  
 Contract 4

PROJECT NO. 123317987-4

ATTN Erik Hansen

REPORT NO. 3

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

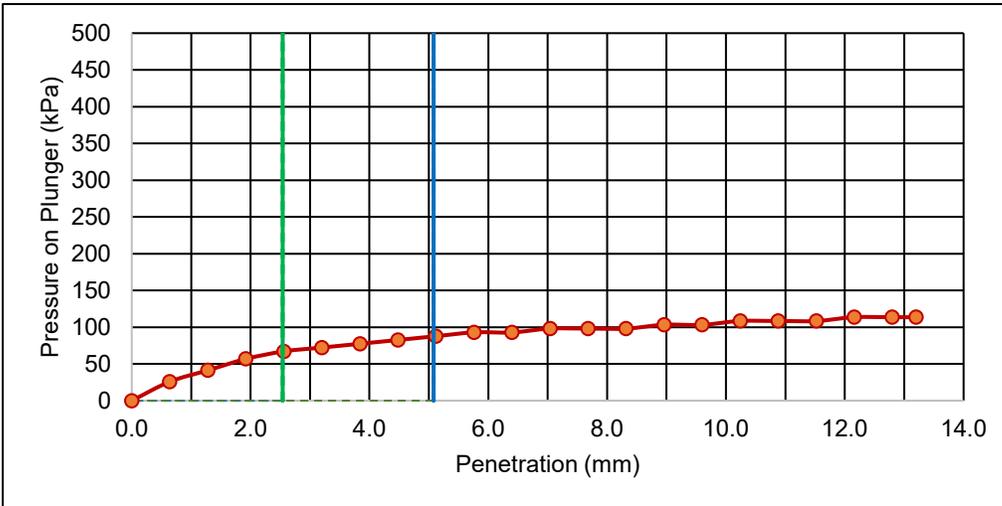
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Donald Eliazar

**MATERIAL IDENTIFICATION**

MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Bore hole
MATERIAL TYPE	Fat Clay (CH)	SAMPLE LOCATION	BH-118, 0.7 m
SPECIFICATION ID	Not Applicable	STANTEC SAMPLE NO.	2690

IMMERSION PERIOD	96 ± 2 hr	TARGET MAX. DRY DENSITY	1370 kg/m <sup>3</sup>
CONDITION OF SAMPLE	Soaked	TARGET OPTIMUM MOISTURE	25.5 %
SURCHARGE MASS	4.54 kg		
+19 mm OVERSIZE	0 %	AS-COMPACTED DRY DENSITY	1305 kg/m <sup>3</sup>
SWELL OF SAMPLE	9.86 %	AS-COMPACTED MOISTURE	25.1 %
POST-TEST MOISTURE	55.3 %	AS-COMPACTED % COMPACTION	95 %



**CBR VALUE AT 2.54 mm  
PENETRATION**  
1.0

**CBR VALUE AT 5.08 mm  
PENETRATION**  
0.9

**COMMENTS**

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.



REPORT DATE 2026.Jan.13

REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO City of Winnipeg  
 104 - 1155 Pacific Avenue  
 Winnipeg, Manitoba  
 R3E 2P1

PROJECT 2026 Local Street Renewal Program -  
 Contract 4

PROJECT NO. 123317987-4

ATTN Erik Hansen

REPORT NO. 4

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

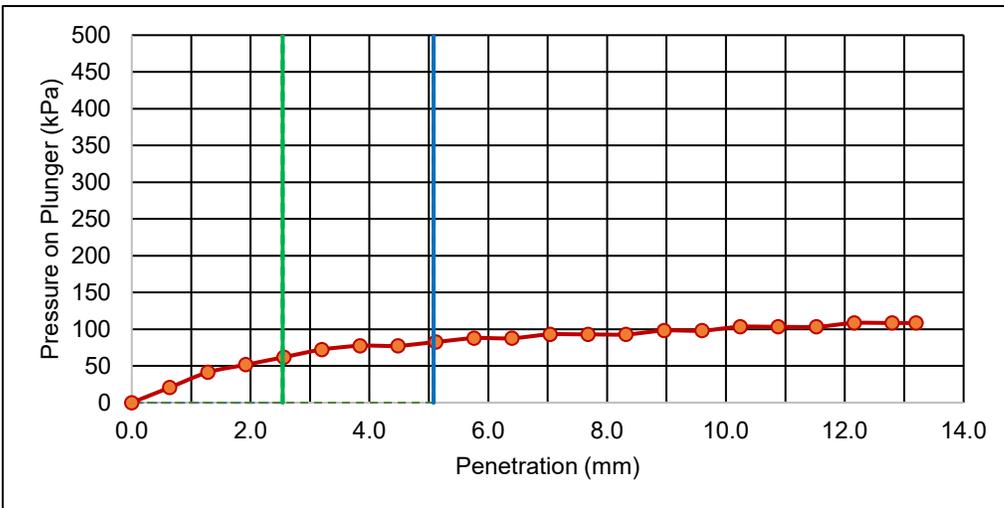
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Donald Eliazar

**MATERIAL IDENTIFICATION**

MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Bore hole
MATERIAL TYPE	Fat Clay (CH)	SAMPLE LOCATION	BH-119, 0.8 m
SPECIFICATION ID	Not Applicable	STANTEC SAMPLE NO.	2691

IMMERSION PERIOD	96 ± 2 hr	TARGET MAX. DRY DENSITY	1420 kg/m <sup>3</sup>
CONDITION OF SAMPLE	Soaked	TARGET OPTIMUM MOISTURE	24.5 %
SURCHARGE MASS	4.54 kg		
+19 mm OVERSIZE	0 %	AS-COMPACTED DRY DENSITY	1349 kg/m <sup>3</sup>
SWELL OF SAMPLE	10.77 %	AS-COMPACTED MOISTURE	24.6 %
POST-TEST MOISTURE	53.5 %	AS-COMPACTED % COMPACTION	95 %



**CBR VALUE AT 2.54 mm  
PENETRATION**  
0.9

**CBR VALUE AT 5.08 mm  
PENETRATION**  
0.8

**COMMENTS**

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.



REPORT DATE 2026.Jan.13

REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO City of Winnipeg  
 104 - 1155 Pacific Avenue  
 Winnipeg, Manitoba  
 R3E 2P1

PROJECT 2026 Local Street Renewal Program -  
 Contract 4

PROJECT NO. 123317987-4

ATTN Erik Hansen

REPORT NO. 5

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

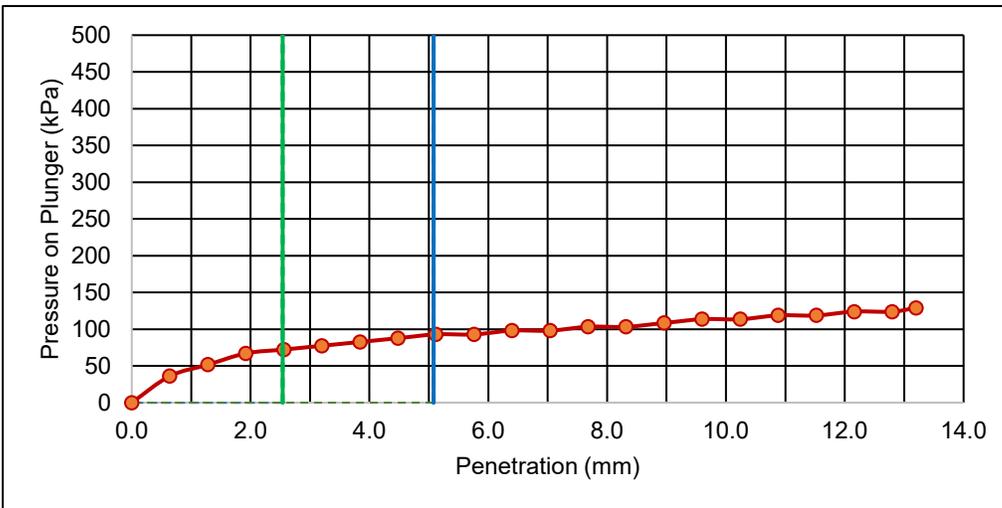
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Donald Eliazar

**MATERIAL IDENTIFICATION**

MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Bore hole
MATERIAL TYPE	Fat Clay (CH)	SAMPLE LOCATION	BH-120, 0.7 m
SPECIFICATION ID	Not Applicable	STANTEC SAMPLE NO.	2692

IMMERSION PERIOD	96 ± 2 hr	TARGET MAX. DRY DENSITY	1460 kg/m <sup>3</sup>
CONDITION OF SAMPLE	Soaked	TARGET OPTIMUM MOISTURE	24.0 %
SURCHARGE MASS	4.54 kg		
+19 mm OVERSIZE	0 %	AS-COMPACTED DRY DENSITY	1387 kg/m <sup>3</sup>
SWELL OF SAMPLE	7.73 %	AS-COMPACTED MOISTURE	24.0 %
POST-TEST MOISTURE	46.3 %	AS-COMPACTED % COMPACTION	95 %



**CBR VALUE AT 2.54 mm  
PENETRATION**  
1.0

**CBR VALUE AT 5.08 mm  
PENETRATION**  
0.9

**COMMENTS**

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.



REPORT DATE 2026.Jan.13

REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services

## ASTM D1883 - CALIFORNIA BEARING RATIO (CBR) OF LABORATORY-COMPACTED SOILS

TO City of Winnipeg  
 104 - 1155 Pacific Avenue  
 Winnipeg, Manitoba  
 R3E 2P1

PROJECT 2026 Local Street Renewal Program -  
 Contract 4

PROJECT NO. 123317987-4

ATTN Erik Hansen

REPORT NO. 6

DATE SAMPLED: 2025.Dec.02

DATE RECEIVED: 2025.Dec.02

DATE TESTED: 2026.Jan.08

SAMPLED BY: Stantec Consulting Ltd.

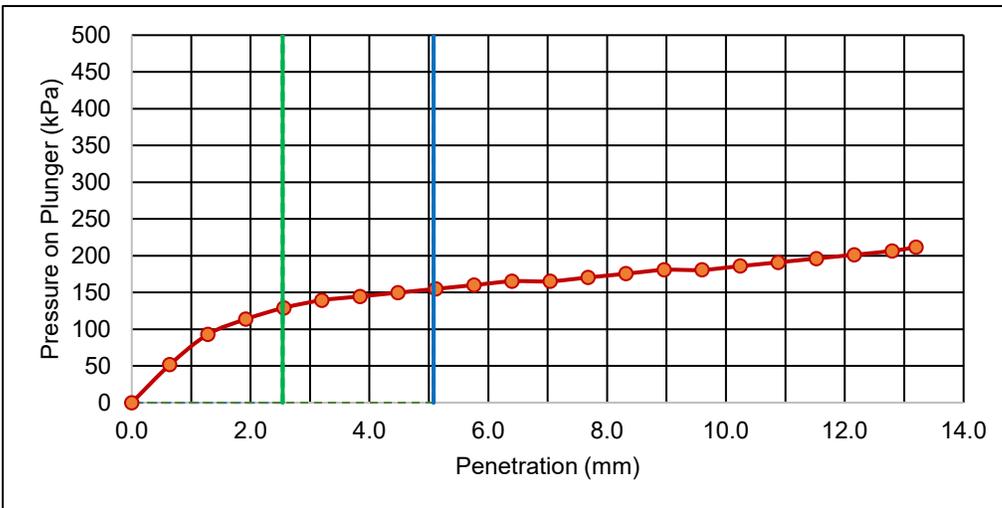
SUBMITTED BY: Stantec Consulting Ltd.

TESTED BY: Donald Eliazar

**MATERIAL IDENTIFICATION**

MATERIAL USE	Subgrade	SUPPLIER	Existing Material
MAX. NOMINAL SIZE	< 4.75 mm	SOURCE	Bore hole
MATERIAL TYPE	Fat Clay (CH)	SAMPLE LOCATION	BH-121, 0.7 m
SPECIFICATION ID	Not Applicable	STANTEC SAMPLE NO.	2693

IMMERSION PERIOD	96 ± 2 hr	TARGET MAX. DRY DENSITY	1420 kg/m <sup>3</sup>
CONDITION OF SAMPLE	Soaked	TARGET OPTIMUM MOISTURE	27.5 %
SURCHARGE MASS	4.54 kg		
+19 mm OVERSIZE	0 %	AS-COMPACTED DRY DENSITY	1350 kg/m <sup>3</sup>
SWELL OF SAMPLE	5.47 %	AS-COMPACTED MOISTURE	27.4 %
POST-TEST MOISTURE	45.1 %	AS-COMPACTED % COMPACTION	95 %



**CBR VALUE AT 2.54 mm  
PENETRATION**  
1.9

**CBR VALUE AT 5.08 mm  
PENETRATION**  
1.5

**COMMENTS**

Sample prepared to 95% of the maximum dry density at the optimum moisture content as determined from ASTM D698.



REPORT DATE 2026.Jan.13

REVIEWED BY Guillaume Beauce, P.Eng.  
 Geotechnical Engineer - Materials Testing Services